

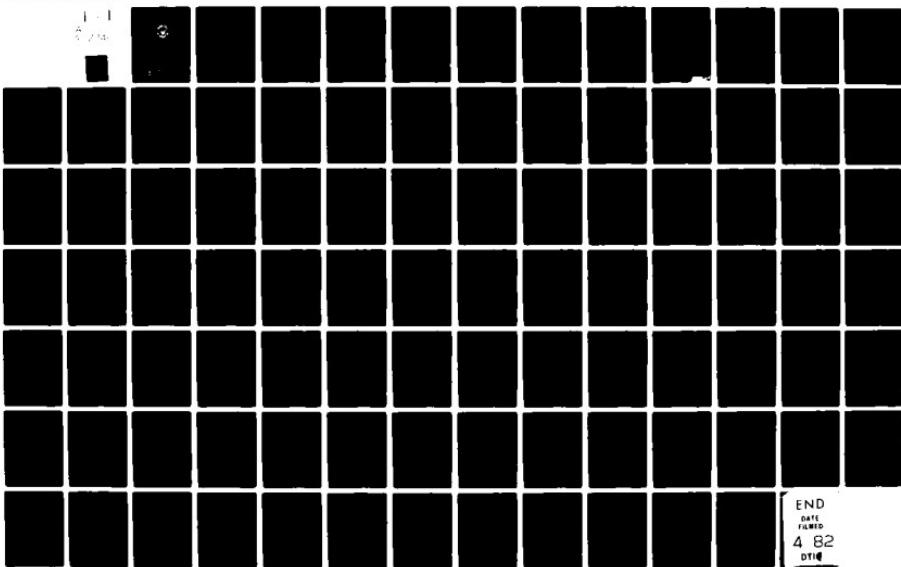
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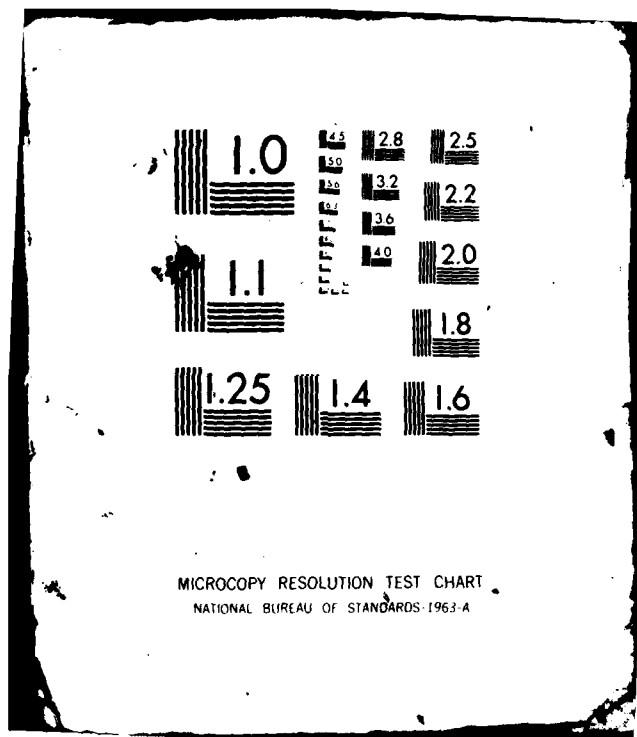
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# NAVAL POSTGRADUATE SCHOOL

## Monterey, California

ADA 112740



# THESIS

ASSESSMENT OF THE POTENTIAL FOR  
HUMAN RESOURCE ACCOUNTING IN VENEZUELAN  
NAVY MANAGEMENT DECISION MAKING

by

Kenneth J. La Grave Marin

December 1981

Thesis Advisor:

Richard A. McGonigal

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The application of HRA in the Venezuelan Navy is supported. The historical cost model suggested has attempted to contribute to a useful theory of HRA to improve control and management in the Venezuelan Navy personnel decision making process.

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by

Kenneth J. La Grave Marin  
Commander, Venezuelan Navy

Submitted in partial fulfillment of the  
requirements of the degree of

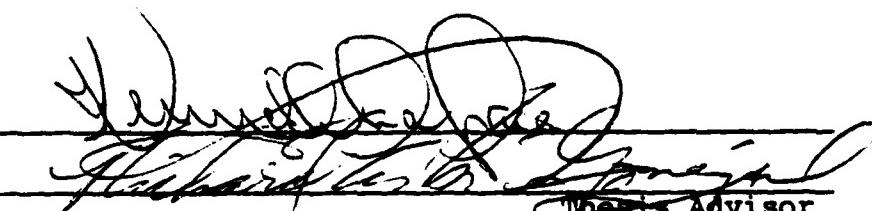
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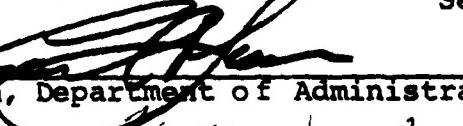
  
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ABSTRACT

Human Resource Accounting (HRA) has been developed to provide accurate estimations of human value to organizational entities and useful information to managers in their decision making processes. It is shown that HRA can serve as an internal management tool.

In this thesis HRA concepts are presented. Consistent with concepts of assessing human resources, the costs and value to the organization are addressed to include significant and relevant criticisms from authors in the field of HRA. Finally, a historical cost method based upon HRA principles is proposed, specifically looking for impacts upon Venezuelan Navy managerial personnel decisions.

The application of HRA in the Venezuelan Navy is supported. The historical cost model suggested has attempted to contribute to a useful theory of HRA to improve control and management in the Venezuelan Navy personnel decision making process.

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## I. INTRODUCTION

### A. BACKGROUND

Over the years accountants have expanded the scope of their activities and responsibilities to provide useful information to decision makers. One of the controversial aspects of their activities is generally known as "Human Resource Accounting" (HRA). Primarily aimed at the measurement and reporting of human resource cost and value to management, HRA has been debated on the ground of measurement feasibility and reliability, and the effects of implementation. Traditional accounting systems have excluded formal considerations of the "human element" in organizations. For more than a decade HRA has been the subject of considerable speculation and controversy [Ref. 1].

Accounting has generally followed the practice of charging human resource costs (salary, tax, training, etc.) as expenses in the period incurred. Human resource costs such as these are not reported as separately identified assets on a balance sheet but rather some of these costs are reflected in the value of production inventories. Consequently, users of a financial report are provided with little or no information about the importance of human resources of the organization. Accounting authorities have been talking about HRA and there have been arguments for a

change in the accounting treatment of human resources. Some proponents for change suggest a departure from historical cost measurements in favor of measurement by replacement cost or, for instance, by the capitalization of expected future salaries [Ref. 2].

HRA entry into the managerial accounting world was due to the efforts of people like Rensis Likert. In the early 1960's, Likert suggested that managers tended to adopt an authoritarian style of leadership because their promotions were dependent upon productivity and cost reductions. These accounting reports which utilized costs and production as measures of performance for the purposes of determining bonuses and promotions encouraged such shortsightedness because no evidence was presented to indicate that the short-run gains of increased production and decreased costs would result in labor dissatisfaction and long-run inefficiencies [Ref. 3].

After a review of relevant literature the author feels that HRA is useful internally to the managerial accountant and to management. In general, HRA has utility for investors, and it has important implications for the public accountant. In the development of HRA, one of the primary problems is to develop valid and reliable measurements of human resources. Given the significance of human assets to the effective functioning of organizations, it follows that

management should have consistent and reliable ways of measuring their values and costs.

Among the known examples of firms attempting to measure the amount of unrecorded human assets are R. G. Barry Corp., American Telephone and Telegraph Company, and Lester Witte and Company. Academic studies in this area include Cullather (1967), Brummet (1968), Lew and Schwartz (1971), Morse (1973), Jaggi and Lau (1974), Flamholtz (1974), Freedman and Lev (1974), and Ogan (1976). Unfortunately, however, many of these studies have failed to recognize the important distinction between an employee's own human capital worth and the unrecorded human assets accruing to the employer [Ref. 4].

People are important resources in the Venezuelan Navy. In order to obtain the full benefits of human resources, the Venezuelan Navy, similar to either private or other government organizations, incurs "human resource costs" such as wages and salaries, recruiting costs, selection costs, hiring costs, orientation costs, and training costs.

For the purposes of the Venezuelan Navy, any procedure which produces the information management needs for decision making could be of value. In managerial accounting, no established principles exist stating what, how, and when information must be processed and reported. Therefore, HRA can be separate from the financial accounting system.

## B. STATEMENT OF THE PROBLEM

The author contends that the management personnel processes in the Venezuelan Navy have been one of continuous improvement. This does not mean that the process has reached a satisfactory level of efficiency, but that year-by-year it has brought almost a more efficient management of human resources.

The Venezuelan Government has just acquired naval weapon systems to improve its naval capabilities. Technological advancements in warfare and in the weapons designed for that warfare require increased emphasis upon cost-effectiveness analysis of human resources in an effort to procure the most effective personnel for the hardware just arriving. These efforts entail analysis of interrelationships among man, equipment and organization.

When the subject is either material or financial, resources are more easily quantified. Perhaps because of the suspected but undefined hidden costs of human assets, the usual practice is to assess personnel items in the liability column of the balance sheet in the rubric of salaries, benefits and retirements costs payables. In a discussion to trim budgets, for example, the material portion of a boiler equipment subsystem is much easier to inventory than the selection, training, and support costs of the personnel associated with the system.

One of the most important and significant aspects of personnel management is not that of wage and salaries

considerations. Management places an enormous emphasis upon the recruitment, satisfaction, turnover, and motivation of the employees and on the very survival of the organization. Motivated personnel have more value than unmotivated [Ref. 5]. A means of quantifying these factors would help managers prioritize their impact.

#### C. OBJECTIVES OF THE THESIS

HRA means accounting for people within an organization and as a resource of the organization. The specific problem upon which this thesis focuses is the effects and advantages of HRA cost estimates on managerial decision making to improve the cost effectiveness of human resource management in the Venezuelan Navy. As described later, the focus of this study is the output (end result) based on the managerial decision process. The orientation of this thesis can be considered as an extension of a study reported by Flamholtz [Ref. 6].

The costs of recruitment, hiring, training, and all costs related to personnel are not reflected in the ordinary salary table and, generally, an efficient system for valuing these assets has been missing. This thesis intends to summarize prior literature on human resource and thereafter proposes an HRA cost model that would be useful to Venezuelan personnel management.

The Venezuelan Navy personnel management process has experienced some problems that have distracted from its effectiveness. This thesis will look at ways in which HRA could be useful and respond to an effective decision making process through greater assurance that costs associated with acquisition and development have been carefully determined.

HRA is a topic which has attracted considerable attention during the last 15 years. Several sources within the literature have proposed conceptual frameworks to formalize procedures for quantifying the human resources of organizations.

Taking into account the theoretical HRA frameworks suggested by Flamholtz, a methodology is proposed using data not too difficult to be collected for estimating costs induced by human investment. A cost model is presented as an alternative measurement tool for quantifying investment in human resources.

For the purposes of the Venezuelan Navy, the human resources dimensions will assist Navy managers in different levels of personnel's needs. No massive data collection effort is required to implement the methodology presented.

With this purpose in mind, this thesis has been developed. Its impact upon the Venezuelan Navy by employment of HRA to improve the effectiveness of managerial decision making remains to be proven.

#### D. METHODOLOGY

The acceptability of HRA data to personnel decision making has not been established in the Venezuelan Navy and no previous evidence of application of HRA exists.

To gather evidence regarding the applicability of HRA in the Venezuelan Navy, a literature search was conducted. Books and periodical literature were surveyed in order to compile material about this topic. Discussions with experienced people in management also gave the author information about HRA.

Knowledge and generalizations drawn from this study were deduced by means of content analysis. The data acquired from the content analysis were analyzed in order to present a model for the possible implementation of an HRA system in the Venezuelan Navy.

## II. HUMAN RESOURCE ACCOUNTING

### A. INTRODUCTION

Accounting is the process of providing information to owners, creditors, governmental activities and regulatory agencies, investing public, and operating management. HRA ranks preeminently among new developments being considered by accounting theorists and practitioners. It has been defined as "the process of identifying and measuring data about human resources and communicating this information to interested parties." [Ref. 7]

Unfortunately, while critical to widespread acceptance of HRA, it has been considered primarily by speculative rather than by scientific means [Ref. 8].

HRA has proven to be of great interest to potential users. Concrete applications of the ideas, however, are still few in number [Ref. 9]. At this stage it remains difficult to know whether many of the ideas can be applied. Most of the literature in Europe, as well as in the United States, has relegated the fundamental questions to a rather minor position. Apparently, in the author's opinion, researchers can only relate to laboratory experiments or, on rare occasions, field experiments. As a result, HRA concepts have rarely been related to the underlying personnel management process.

RA has as its objective the monetary evaluation of human resources which is available to an enterprise or an organization at any given moment. Hence, the principal objective has been to develop HRA as a managerial tool rather than for corporate financial reporting.

Today's programmers are working on plans in order to reach established goals to make people happier and more productive workers. These programs involve investment in human resources and are expected to produce future benefits over and above their current costs. Until the mid-1960's, these outlays were reflected as expenses in the period in which they occurred. At that time, however, some people began to question this practice (e.g., Hermanson, 1964; Brummet, Flamholtz and Plye, 1969; Pyle, 1970), and suggested that a more realistic matching of expenditures and revenues would result if the outlays were capitalized as dictated by generally accepted accounting principles for other types of assets.

Matching expenses by utilizing capitalized costs is one of the many problems of HRA. Likert and Bowens criticized conventional accounting reports for ignoring whether or not management has stimulated the will to work or contribute to employee satisfaction, two factors, they argued, that can change an organization's productive capabilities [Ref. 10]. In other words fluctuations in financial results can be attributed to changes in the decision making process.

Flamholtz says that if managers are unaware of how their decisions affect personnel, this will result in inefficient decision making [Ref. 11].

Likert and Pyle argued that inadequacies in HRA alter an enterprise's financial status because recording the value of human resource is necessary to understand why customers and/or employees leave [Ref. 12].

More recently, accountants have recognized HRA as an extension of the concept of good will. R. S. Gynther noted that, if the present value of excess earning is the most recommended valuation method for good will, the important question is why the excess earning power exists. "If all other assets are valued correctly, the answer will be found in some form of human or other kind of intangible asset, such as 'high managerial ability,' 'excellent staff,' 'trade names,' and so on." [Ref. 13]. In any case, there is added value not accounted for by cost.

#### B. HUMAN RESOURCE ACCOUNTING: ITS LINKS WITH CONVENTIONAL ACCOUNTING

The concept that people have value to an organization, derived from general economic value theory, relates to the expectation that they will contribute services to it in the future [Ref. 14]. Therefore, if a human being is capable of providing future service potential, clearly a case can be made for treating that as an asset. Such costs which yield current benefits should be treated as an expense

(e.g., employee motivation); those which yield future benefits may be regarded as an asset (e.g., training) and should be capitalized.

Through the years, however, as stated earlier one resource not accounted for as an asset by the management accounting system is the human resource. Rhode, Lawler, and Sundem suggest that this is perhaps because traditional accounting systems have been tailored to manufacturing firms where physical financial assets predominate. But, in services including growth firms such as computer software companies and entertainment agencies, as well as higher education and government units, human resources might be more important than physical or financial assets [Ref. 15].

The Committee on HRA of the American Accounting Association (AAA) points out that:

"...the accepted practice of regarding all expenditures on human capital formulation as an immediate charge against income is inconsistent with the treatment accorded comparable outlays on physical capital...." [Ref. 16]

Conventional accounting systems consider all human resource costs as an expense in the period in which the cost is incurred. This action implies that there are no future benefits associated with human resource costs. The Committee on Accounting Concepts and Standards of the AAA define assets as "...aggregates of service potential available for/or beneficial to expected operations...." [Ref. 17]

Flamholtz states:

"...the most essential criterion for determining whether a cost is an 'asset' or an 'expense' relates to the notion of future service potential; this is the SINE QUA NON of all assets...." [Ref. 18]

In explaining the future service potential characteristic of assets, Hendriksen argued that "...the rights must have a positive benefit; rights with zero or negative potential benefits are not assets...." [Ref. 19]

On this particular point Flamholtz agrees to measure an employee's "discounted future earning contributed to the firm...." "we must, of course, deduct payments to the individual for salary to derive a measure of his net contribution...." [Ref. 20]

Flamholtz [Ref. 21] also notes three essential conditions necessary to qualify "people as assets...."

1. The asset must possess future service potential.
2. The asset must be measurable in monetary terms.
3. The asset must be subject to the ownership or control of the accounting entity.

Most opponents of the HRA have indicated that costs associated with the human resource, such as employee training programs, should not be capitalized because the future benefits or the costs associated with revenue of a future period cannot be objectively measured. In the author's opinion, however, this line of argument is not consistent with their treatment of other assets (e.g., the life of a

building, equipment). The costs of these items are capitalized but are not objectively measured or associated with revenues of future periods. Buildings as well as lands may increase in value over time. The measurement is based on estimation. Human resource costs can, therefore, be measured on the same basis as other assets, that is, estimation. Assets and expenses are costs to the organization. The distinction between these two items of cost under the conventional accounting systems is that an "expense is the expired cost" whereas an "asset is the unexpired cost which has a service potential available to expected operations" [Ref. 22].

It is important to distinguish between assets and expenses because if an item of cost is classified as an 'expired cost' when in reality it is an 'unexpired cost' the income for that organization will be understated, incorrect, and misleading in the period reported. Horngren [Ref. 23] emphasizes the Likert and Pyle argument that the charging of all cost of a human asset to expense as incurred tends to induce short-run pressures on the size of productivity of the work force; this, in turn, can have long-run adverse effects on revenues and expenses.

Sprouse and Moonitz stress that the economic viewpoint "...the value of the assets, indeed their existence, depend upon the future economic service they are capable of rendering to the business enterprise..." [Ref. 24]. Thus, in

order to be classified as an asset, a resource must have service potential for more than one period.

The essential criterion, then, for determining whether a particular resource should be capitalized or labeled an expense depends upon its future service potential. Based on this criterion, it can be said that employee service resources which have potential to provide economic benefits to the organization for more than one period should be treated as assets [Ref. 25].

Accountants consider ownership essential in the asset valuation because an economic resource is defined as an element of wealth that has economic value because it possesses the characteristics of utility, scarcity, and exchangeability [Ref. 26]. Hence, a resource that is not capable of being sold by itself does not have exchangeability. However, it is recognized that for some companies the charging of large expenditures for human resources to earning on a current basis may distort income reported in the short term.

Jauch and Skigen make the assertion "...that humans simply do not qualify as assets under the usual definition... [Ref. 27]. Their definition of an asset is based on the legalistic viewpoint which emphasizes the ownership aspect. Since humans legally are not owned by the firm, they cannot be considered as assets. However, it needs mentioning that HRA is not concerned with humans per se. Rather, its primary concern is the performance of employee's services.

Apart from the measurement of these services, the concept is not concerned with any other activities of the employees [Ref. 28].

The ownership criterion may be the principal problem between HRA and conventional accounting; however, McRea shows two basic assumptions of human resource valuation that link it to conventional accounting [Ref. 29]:

1. An organization incurs economic costs in acquiring human resources and thus expects commensurate benefits contributing to its economic effectiveness. As expected, returns are essentially economic; they can be measured in financial terms.
2. Human resources fit the usual definitions of accounting assets because they represent the right to receive economic benefits in the future.

Again, an asset entails a cost that is planned to provide benefits in future periods. An expense, on the other hand, is an outlay, providing benefits in the current period. A basic idea of HRA is that, since income generated by human investment will be largely realized in future periods, human resource should be treated as assets.

#### C. HUMAN RESOURCE ACCOUNTING COMPONENTS

To provide further insight into what are the HRA components and how they are reflected in an organization, an examination of the concepts of HRA follows.

HRA can be viewed from two primary perceptives. These two points of view are:

- Human Resource Cost
  - Human Resource Value
1. Human Resource Cost

This concept is derived from the accounting point of view of cost, which is defined as a "sacrifice incurred to obtain some anticipated benefit or service" [Ref. 30].

Flamholtz [Ref. 31], a noted pioneer of HRA, has defined human resource cost as "cost incurred to acquire or replace people."

Human resource cost generally consists of two portions. The first part represents investments made directly by the organization in acquiring human resources. These investments usually appear in the form of recruiting, selecting, hiring, placing, familiarizing, training, and development costs.

The second portion is the aggregate purchase price of future services provided by all employees. This price is normally affected by the level of education, training, skill, health, experience, etc. It is called salary.

Another look at these costs is through the title "Original and Replacement Costs." "The sacrifice that was actually incurred to acquire and develop people" is defined as "Original Cost" [Ref. 32]. As indicated above, these costs include recruitment, selection, hiring, placement, orientation, and on-the-job training.

The "Replacement Cost" of human resource refers to "the sacrifice that would have to be incurred today to replace human resources presently employed." These costs include turnover costs, acquiring costs, and development costs [Ref. 33].

The human resource costs also can be broken into direct and indirect costs. Direct costs refer to the amounts that can be traced directly to the resource or activity. Indirect costs are costs that cannot be traced directly to the process. These costs have to be allocated among the activities on the basis of the assumptions relating to the benefits received. For instance, when considering learning costs in a firm, expenses incurred for informational literature are direct costs of the training. Lost productivity during training is an indirect cost.

## 2. Human Resource Value

Economic theory states that resources have value because they are capable of rendering future services. Therefore, the worth of people to an organization can be defined as the present value of their expected future services.

Lew and Schartz assess the value of an individual's expected future service by considering the length of his/her service and his/her expected annual earnings.

Flamholtz argues two aspects as determinants of an individual's value to an organization. He recognizes

that people are different from other resources, and hence, "they are relatively free to either supply or withhold their services." He also established a dual aspect to an individual's value; the "Expected Conditional Value" and the person's "Expected Realizable Value" [Ref. 34].

The individual's worth is then calculated as the product of two determinants: the expected conditional value (e.g., the present worth of potential services if the person remains with the organization for his/her entire expected service life) and the probability of continued service, which is the complement of the probability of turnover. These determinants are the bases of Flamholtz' expected realizable value theory.

One last point is related to an individual's value to an organization, but many management theorists argue that groups rather than individuals should be the primary focus of the study.

Likert and Bowers have developed a model where they identify variables which influence the effectiveness of human organization, it represents..."the productive capability of the human organization of any enterprise or unit within it (e.g., a work group)..." [Ref. 35]. They show three types of variables: "Causal Variables," those which represent variables controllable by the organization (managerial behavior and organizational structures); "Intervening Variables," those which reflect organizational capabilities

(group process, peer leadership, organizational climate and individual satisfaction); and the "End-Result Variables," which are determinates by Casual and Intervening Variables (productive efficiency).

#### D. HUMAN RESOURCE ACCOUNTING MEASURES

As presented in the earlier sections, there are many ways of accounting for human assets measurements. These methods can be grouped under two major headings; those that measure cost and those that measure value.

##### 1. Human Resource Accounting Cost Measures

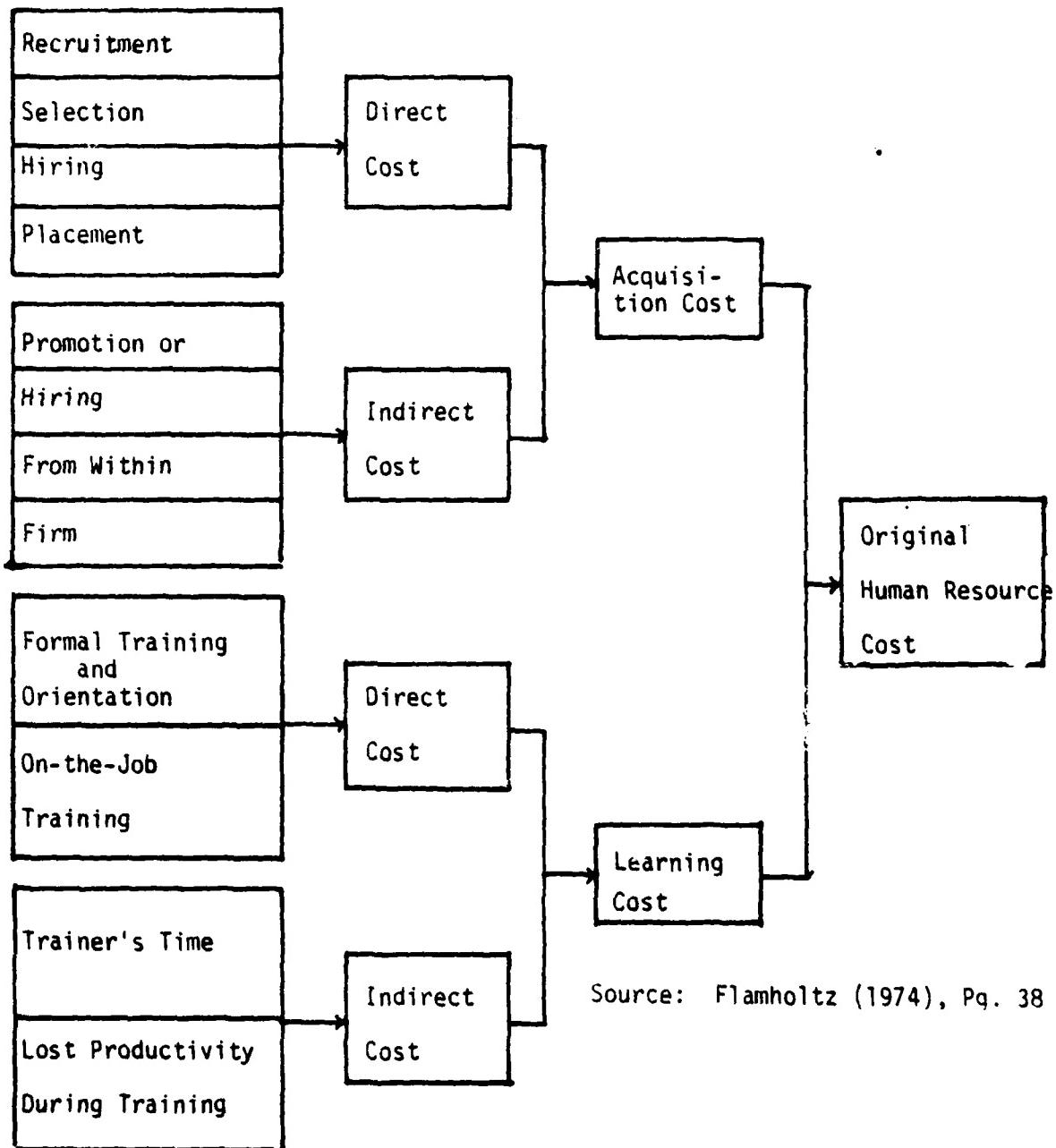
This is an application of traditional financial accounting to human capital. The expense incurred in employing corporate personnel are viewed as investments. The capitalized costs are amortized over the expected useful period of the investment. If a person leaves the organization before the investment is fully amortized, the balance is recognized, when he/she leaves, as a loss [Ref. 36].

Human resource literature has generally identified two HRA cost measures: Original or Historical Costs and Replacement Costs.

###### a. Historical Costs (Original)

The author contends that the historical cost method is the most compatible with traditional accounting. As shown in Exhibit II-1, it has two sub-branches; acquisition cost and learning cost.

EXHIBIT II-1  
MODEL FOR MEASUREMENT OF ORIGINAL HUMAN RESOURCE COSTS



Source: Flamholtz (1974), Pg. 38

Flamholtz defines "Original Cost" as the sacrifice that has to be incurred today to acquire and develop people. "Acquisition Cost" refers to the sacrifice that must be incurred to acquire a new position-holder, and "Learning Cost" to the sacrifice to be incurred to train a person and bring that individual to the level of performance normally in a given position [Ref. 37].

This method provides a basis to calculate a return on investment for human capital that can be easily understood by both accountants and managers.

b. Replacement Costs

This type of cost is based on a measure of the cost to replace an organization's human resources as shown in Exhibit II-2.

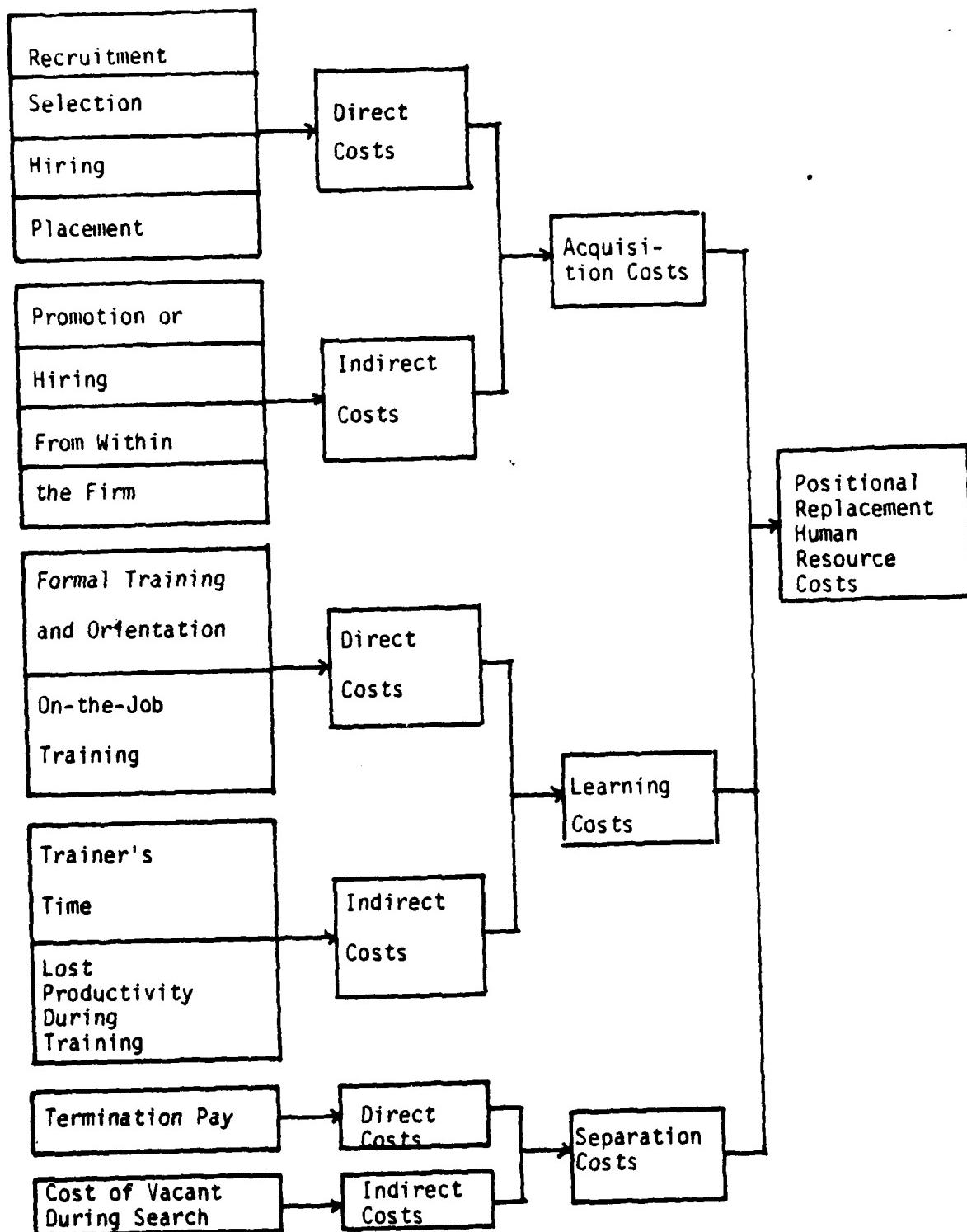
Replacement costs reflect estimates of the direct expenses incurred in the recruiting, hiring, familiarization, and training of individuals for a potential vacancy [Ref. 38] plus the indirect costs of carrying a vacancy until a replacement can fill it.

Flamholtz [Ref. 39] distinguished three basic elements of positional replacement cost:

- (1) Acquisition Costs
- (2) Learning Costs
- (3) Separation Costs

EXHIBIT II-2

MODEL FOR MEASUREMENT OF REPLACEMENT HUMAN RESOURCE COST



Source: Flamholtz (1974), Pg. 37.

The first two are similar to the acquisition and learning cost concepts addressed in the previous section. "Separation Costs" is the cost incurred as a result of a position-holder leaving an organization. For example, during the period of searching for a new salesman, an opportunity cost may be incurred because of the loss of sales that would otherwise have accrued to the organization. Flamholtz [Ref. 40] also presents two categories of position replacement cost; "Standard" and "Anticipated." The first is the cost of replacing an individual (should the position be) taken by the most qualified substitute; the second refers to the cost of acquiring the best available substitute.

## 2. Human Resource Accounting Value Measures

There is no doubt that human resources have several stores of value, but the actual use of this value by the firm depends upon the health of the employees and their association with the organization. The problem with human resource valuation is complicated by the obvious uncertainty of the length of any employee's stay with the firm. To account for this uncertainty, the valuation models must use the most sophisticated mathematical techniques.

### a. Lew and Schwartz Study

Lew and Schwartz [Ref. 41] made a contribution to the field of HRA by introducing the economic value concept of human resources. In their model the employees' salaries were used as a substitute to determine their economic value.

They considered the employee's value to be equivalent to the present worth of his/her remaining earning. In order to arrive at a value, therefore, this model assumes that employees stay with the organization until they retire. The product of these two estimates--length of service and earning--will provide a quantitative estimate of the individual's value to the organization. An example of the present value method can be stated mathematically as follows:

$$V_r = \frac{\int_r^T I^*(t) dt}{(1+d)^{T-r}}$$

Where:

$V_r$ : The human capital value of a person  $r$  years old.

$I^*(t)$ : Estimate person's future annual earning up to retirement.

$d$ : A discount rate specific to the person within the organization.

$T$ : Retirement age

$t$ : The termination date, which may be retirement or death, the probability of which can be determined.

b. The Flamholtz Studies

The Flamholtz studies propose a normative human resource valuation which would trace the movement of an employee through organizational positions or "service states" where the individual employee is expected to render specified quantities of services to the organization during a specific time. The probability of the individual occupying these service states is needed so that the "expected service" can be derived using [Ref. 42]:

$$E(s) = \sum_{i=1}^n S_i P(S_i)$$

Where:

$S_i$ : Services expected from each individual's service.

$P(S_i)$ : Probability of occupying a particular service state.

The services that the individual renders determines his/her value to the organization and, according to Flamholtz, the monetary equivalent of the services can be represented in two forms. The first to determine the quantity and price of the services and use their product as the monetary equivalent, and the second is to calculate the income expected to be derived from the rendered services. The expected services are discounted so that their present value can be determined.

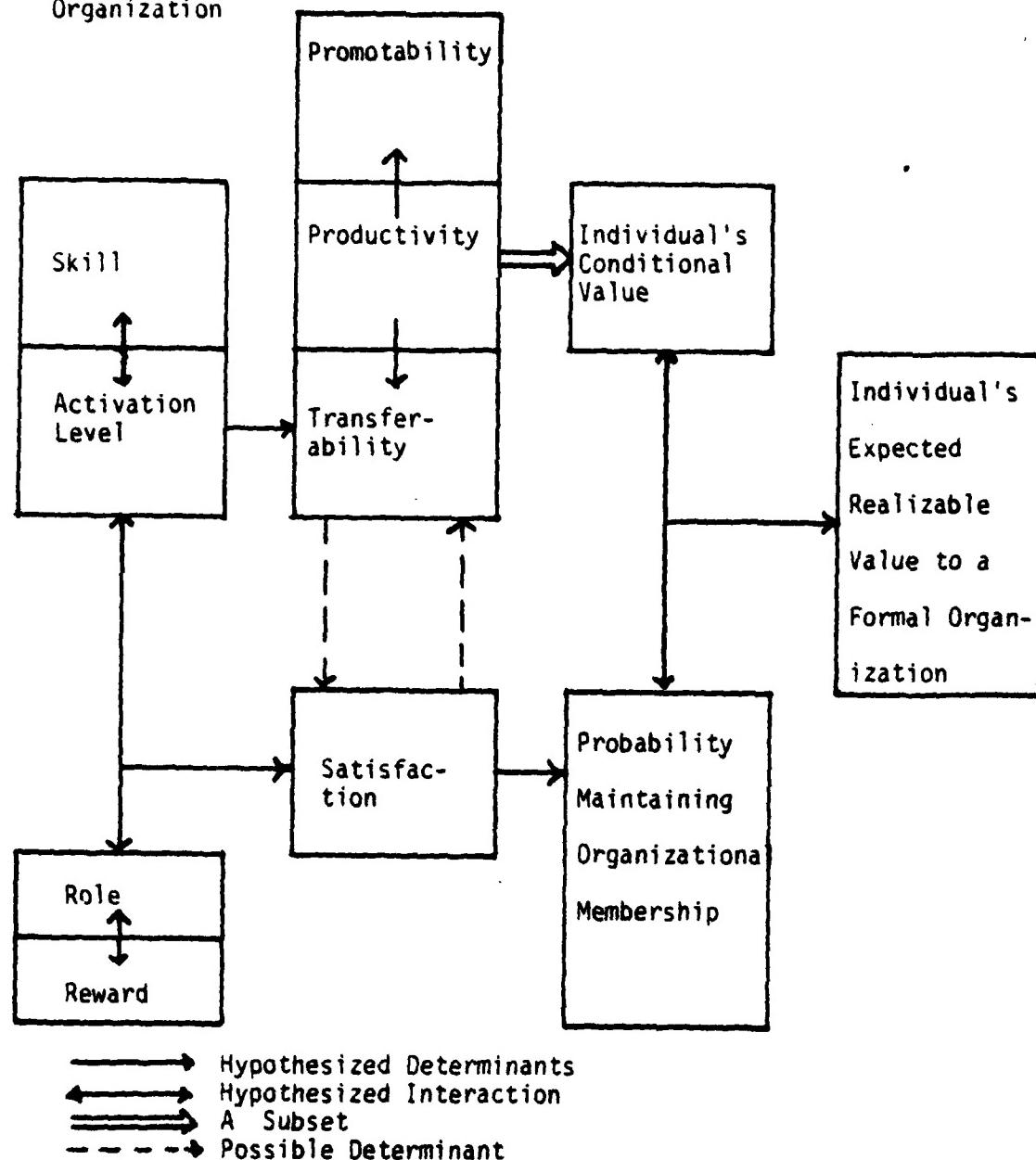
A second study analyzed by Flamholtz offers a model for determining an individual's value to an organization. It uses the present value of the set of the future services the employee is expected to provide during the period he/she is anticipated to remain with the organization. Flamholtz offers the individual's skill and activation level as determinants of a conditional value which interacts with the individual's probability of his/her maintaining organizational membership. This interaction will determine the individual's expected realizable value to a formal organization [Ref. 43]. These relationships are shown in Exhibit II-3.

c. Group Value Model

Likert's Group Model Value identified organizational and individual perspectives for the human value attribute on a group basis within the organization, emphasizing the end-result variables of productivity and financial performance [Ref. 44]. The individual perspective emphasizes health and satisfaction end-result variables. To generate these productivity and satisfaction aspects of the human value, a theoretical input-output network was specified to include causal, intervening, and end-result variables, as shown in Exhibit II-4.

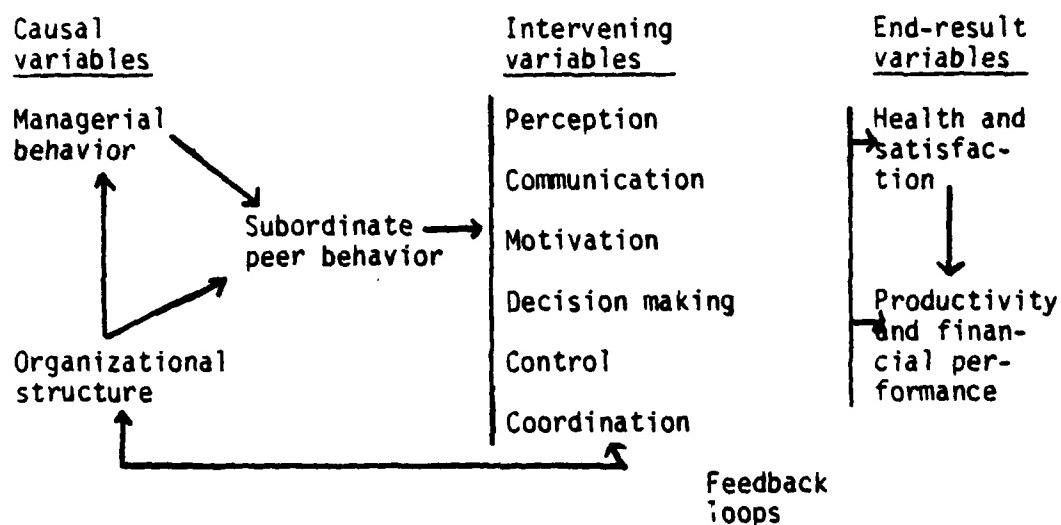
Causal variables are independent variables that an organization's management can alter purposely over time. Management leadership strategies, skills, behavior, policies, and decisions are included in this category.

EXHIBIT II-3  
Model of The Determinates of an Individual's Value to a Formal Organization



Source: Flamholtz, E., "Toward a Theory of Human Resource Value in Formal Organization", The Accounting Review, Oct 72, Pg. 668.

EXHIBIT II-4



Human resource accounting empirical relational system.

Source: Likert R. & Bowers, D. Organizational Theory and Human Resource Accounting, American Psychologist (August 30, 1968, pg. 7)

The intervening variables are a manifestation of the internal state, health, and performance capabilities of the firm. These variables include such attributes as the loyalties, attitudes, motivations, satisfactions, performances, goals, and perceptions of the formal and informal organizational work groups.

The end-result variables are the independent variables which represent the results of a particular firm's efforts. These variables normally are measured in terms of production costs, earnings, market shares, growth, or some combination.

A major improvement to this model was the specification of additional production efficiency (productivity, revenue, quality, manpower, development, and innovation) by Brummet, Flamholtz, and Pyle [Ref. 45].

#### E. SUMMARY OF SHORTCOMINGS OF HUMAN RESOURCE ACCOUNTING

During the past few years HRA has received attention regarding its theoretical usefulness to owners and managers. Problems with its implementation have been found with the conventional accounting principles. These problems tend to center around the intangible nature of the value or contribution of people and the uncertainty of what value an enterprise realizes for future employee services.

Generally, HRA is facing two important arguments: the first is the inability of human resources to qualify as

conventional assets of a business (e.g., something of value owned); and second, is the inability of accountants to measure objectively the future service potential of an individual or group of employees accruing to a firm over their respective service lives.

Brent Carper addressing HRA concluded:

"...given the developing state of the art, none of the model adequately measure all dimensions of an entity's human capital components at the individual, group, and organizational level...Unfortunately, no HRA model currently exists to measure adequately all three human capital elements: individual, group, and organizational level...Some models attempt measurement of the individual's contribution to the entity, while other HRA models are designated to measure only the total value of an entity's human resource. What is needed, however, is a valid and reliable measurement technique to reflect dimensions of the human capital components for a business enterprise...." [Ref. 46]

Dr. Jacob B. Paperman, who has had articles published on current value accounting, cost accounting, and HRA in various professional journals, noted, "...the final results of the initial applications of the HRA for internal usage have not been adequately reported for analysis by the profession...." For each argument against HRA's extension to financial statement a counter argument exists (See Exhibit II-5) [Ref. 47]. The basic issues center on the definition of an asset, use of current value accounting, objectivity, problems of measurements, and the usefulness of data.

The author feels that the accounting profession's current lack of agreement on the objectives and basic principles of

EXHIBIT II-5  
MAJOR ARGUMENTS AGAINST THE USE OF HRA  
IN FINANCIAL STATEMENTS

1. Human Resource do not meet the criteria of ownership required of an assets.
2. Reporting of the human being as assets would have an unfavorable effect upon employee morale.
3. The measurement of the value of human assets is entirely subjective and incapable of verification.
4. Expenditures for specific training measurement of human asset value are either unacceptable under the theory of HRA or Generally Accepted Accounting Principles (GAAP).
5. The information would be misleading or confusing to the readers of financial statements as they have had no experience or standard upon which to evaluate data.

#### THE COUNTER ARGUMENTS FOR HRA

1. Accounting in respect to leases stresses the economic substance rather than the legal form.
2. No evidence exists to prove reporting an employee as an asset and several motivational theories suggest it may prove beneficial.
3. Accounting information should be relevant with less stress on objectivity and verification.
4. Expenditures for specific training will produce future increase in profits, and to expense such items is a violation of the matching principles.
5. It is the accounting profession's responsibility to introduce new practices to improve the relevance of the reports regarding the implications of the changes.
6. The continued use of the principles of conservatism and refusal to capitalize Human Resources expenditures result in an over statement of the future income and a false appearance of improved operations.

SOURCE: Jacob B. Papernon (Jan 1977).

accounting is the primary hindrance to the acceptance of HRA and any theory formally derived through deductive reasoning. In the almost 500 years since Paccioli wrote "The Summa," accountants have still not been able to agree on such a basic issue as the definition of an asset [Ref. 48].

Among the several authors that do not agree on HRA's usefulness to any organization are R. Jauch and M. Skigen. They do not agree with the HRA concept because human resources simply do not qualify as an asset under the usual definition of the term. One point is that assets are defined as something of value owned by the firm; and second, the inability of the accounting profession to develop a meaningful measurement. They argue that human resources should not be capitalized and placed on a statement of financial position. While the concept of HRA may have some value for financial statement presentations, its applications are extremely confined. They content that financial statement presentations based on HRA will probably be more misleading than helpful [Ref. 49].

Professor Trevor Gambling from Birmingham University wrote regarding HRA:

"Does that mean you want to put people on the balance sheet, like plants and buildings?...This is by no means possible; if people did appear anywhere on the balance sheet, it would be part of the goodwill of the whole enterprise. Goodwill cannot be subdivided in any meaningful way between what arises from the possession of a good work-force and what arises from the plant, the patents, and the customers."

"One might be tempted to feel that one could nevertheless capitalize the amounts spent on recruitment and training, but reflections show conclusively that such amounts can only be arrived at after the most tendentious allocations of overheads...." [Ref. 50]

Additional information about the current status and future of HRA is provided by Paperman and Martin. They argue some important concepts in the magazine "Personnel." They have doubt about the usefulness of HRA. Major obstacles to the implementation of operational HRA systems are:

1. Lack of adequate standards for the measurement of human resources.
2. Increased accounting costs.
3. Extreme subjectivity of the valuations of human assets.
4. Lack of tried and tested procedures.

"...The immediate future of HRA is not bright." [Ref. 51]

Most authors base their arguments on the issue of the American Accounting Association's Committee on HRA:

"...The various HRA models available in the literature deal with such variables as the firm's investment in on-the-job training, employee replacement cost, or employee net realizable value, usually with little or no reference to the empirical data. Therefore, interested persons have no way of evaluating the practical usefulness of the suggested models and the future development of HRA is obviously hindered by this lack of empirical information...." [Ref. 52]

The conclusion of the Committee was:

"...Perhaps the most important task facing those who wish to advance work in accounting for human resources stems from the necessity to demonstrate the usefulness of Human Resource Accounting Systems...." [Ref. 53]

### III. PROPOSED METHODOLOGY OF HUMAN RESOURCE ACCOUNTING IN THE VENEZUELAN NAVY

#### A. INTRODUCTION

When an organization invests in human resources, conventional accounting practice treats this case as an "expense" of the current year, the assumption apparently being that this type of item is always for the benefit of the current period. Instead, maybe these costs should be capitalized, since the benefits may be associated with future periods. Many arguments have risen against capitalizing human resources. Although it may seem radical, the idea of capitalizing people in the same way that the accountant figures the value of equipment is rooted in accepted accounting principles. Because acquiring and developing people benefits the organization in the long run, capitalizing the related personnel costs indeed appears to be reasonable [Ref. 54].

The purpose of this chapter is, therefore, to develop a theoretical framework for designing and implementing an HRA model for the Venezuelan Navy. Guidelines are provided to develop the proposed model; its advantages and disadvantages. Finally, the author examines how the proposed HRA model could help in Venezuelan Navy personnel decision making.

## B. A HUMAN RESOURCE ACCOUNTING MODEL FOR THE VENEZUELAN NAVY

The Venezuelan Navy as a branch of the government sector is immune to problems facing the private sector such as tax law changes or pressures to conform to the standard practices of more conventional methods. The author's opinion is that use of an HRA system in the Venezuelan Navy could improve managerial decision making.

HRA implemented in the Venezuelan Navy consist of a new way to accumulate different personnel data. It will constitute a managerial data base for internal decision making.

An investment in human resources would be those costs incurred to locate and train an individual for work within an organization, in this particular case, into the Venezuelan Navy. This is similar to the cost basis for other assets: e.g., the total cost of a fixed asset includes transportation costs, installation, and other costs involved in getting it ready for its intended use.

In getting data, accountants have proposed several methods classified in cost and value.

The author suggests the historical cost method as the means to measure human capital cost in the Venezuelan Navy. Included in the "Original" capital cost would be items such as recruiting, selecting, hiring, orientation, and training (establish such activity as a cost objective). Some of these costs are direct; that is, they can be traced directly to an activity. Others are indirect (e.g., administrative

costs); they cannot be traced directly to an activity and would, therefore, have to be allocated in some reasonable basis.

Five general categories have been chosen for the entire expenditure which constitutes spending for human resource in the Venezuelan Navy. They are shown in Exhibit III-1 and Exhibit III-2.

1. Recruiting

This category is comprised of all those expenses incurred in searching the individuals needed to fill the personnel requirements of the Venezuelan Navy. Here, for example, are included costs like advertising, agency fees and travel expenses.

2. Selection

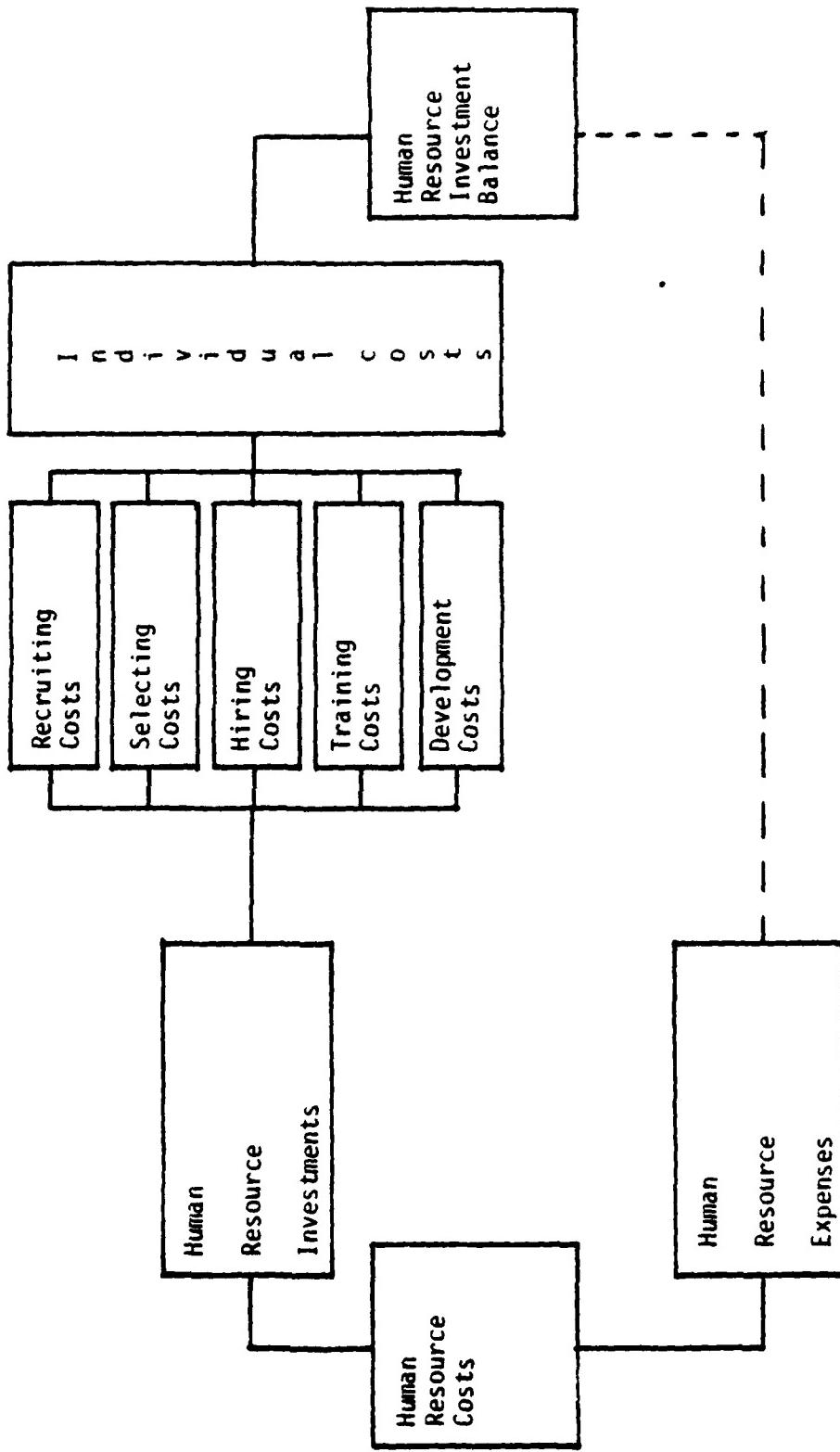
This type of expense includes the cost of selecting the individuals needed to fill the personnel requirements of the Venezuelan Navy. Here are included interviewer travel, salary, psychological and medical tests. Sometimes the Venezuelan Navy authorizes a special group (Officers, Medics, Administrative Personnel, etc.) to perform selection duties in different regions of the country; therefore, allowances and administrative expenses are included.

3. Hiring

In this category are those expenses to bring an individual and place him/her within the organization.

HUMAN RESOURCE HISTORICAL COST MODEL

EXHIBIT III-1



**EXHIBIT III-2**

**HUMAN RESOURCE ACCOUNTING SYSTEM  
INPUT VARIABLES FOR AN HISTORICAL COST MODEL**

**1. RECRUITING**

Advertising  
Agency Fees  
Travel Expenses  
Communication Costs  
Administratives Expenses

**2. SELECTION**

Interviewer Travel  
Medical Test  
Administratives Expenses

**3. HIRING**

Relocation Costs  
Administratives Expenses

**4. TRAINING**

Familiarization (Salary)  
Pre-job Formal Training  
(instructor time,salary)  
On-the-job Training  
(instructor time,salary)

**5. DEVELOPMENT**

Reimbursed Education  
Expenses (tuition,books,travel)  
Seminars (salary,instructor,meals)  
Self-study On Navy Time

Costs of moving and others related with hiring are included (e.g., travel allowances).

#### 4. Training

These are costs such as indoctrination and preliminary training. A new individual usually needs a period of time for familiarization before reaching an entry level of effectiveness. Teaching costs associated with training and familiarization would be considered here.

#### 5. Development

This category would include costs to develop individual skills. Included would be items such as type of education (e.g., technical), conducting seminars, technical development costs, etc.

Another important thing to be noted is that all these costs have to be summarized by individual (Officer, cadet, sailor, civilian, etc.) in order that the Venezuelan Navy managers can be aware of the investment in its human resources.

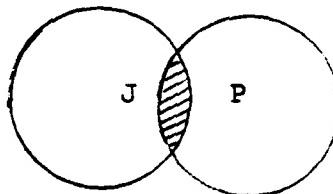
Based on this, the application of HRA emphasized on "Historical Cost" system in the Venezuelan Navy is one of the simplest methods, inexpensive, and entirely feasible to install within a reasonable time frame. Refer to Exhibit III-1 and Exhibit III-2.

There are additional ways that the Venezuelan Navy would incorporate HRA as a management tool. Take the matter of placement of human resources; Flamholtz used a simple model of fitting the person to a job. Let us suppose that

the Venezuelan Navy spent \$45,000 to send an officer to study financial management. That same officer is placed in a job where only 10% of his time is spent on financial matters.

Let P = Person

J = Job



Observing that management process, we might conclude that the placement officer recovered only 10% of his training investment.

Still another use of HRA to management is in quantifying the relationship of expected conditional value to expected realizable value [Ref. 55].

$$E(CV) = \sum_{t=1}^n \left[ \frac{\sum_{i=1}^{m-1} R_i \cdot P(R_i)}{(1+r)^t} \right]$$

Where  $E(CV)$  = Expected conditional value

$R_i$  = The value,  $R$ , to be derived by the Venezuelan Navy in each possible service state, i.

$P(R_i)$  = The probability that the Navy will derive  $R_i$  (that he will occupy state i).

$t$  = Time

$m$  = Retirement state

$(1+r)$  = The discount rate of money.

We use this computation as the denominator of a successful management quotient. This represents the maximum usefulness we can gain from the officer or sailor.

Over this, as a numerator, we compute the expected realizable value.

$$E(RV) = \sum_{t=1}^n \left[ \frac{\sum_{i=1}^m R_i \cdot P(R_i)}{(1+r)^t} \right]$$

(Note that in this expression the retirement state,  $i=m$ , is included).

We can go on to assess an organization management of its human resources by how close that quotient approaches 1.0.

Still another use of this quotient is with the prediction of promotion success, i.e., the actual increased worth divided into the expected increased value. Few navies can claim to quantify the success of their promotion board.

#### C. USEFULNESS OF HUMAN RESOURCE ACCOUNTING AS INTERNAL INFORMATION

Even though HRA has only had limited implementation around the world, it is improper to believe that HRA has been completely disregarded by investors and managers. It is an accepted fact in financial analysis that the valuation of a firm is strongly influenced by its human resources.

The Venezuelan Navy managers have to recognize the importance of human resources when making decisions.

Pyle stated:

"...as long as organizations have existed, executives have been "accounting," at least subjectively, for those resources in reaching decisions as to which people should be hired, developed, promoted, transferred, or terminated...." [Ref. 56]

The former historical cost model attempts to identify the specific cost (input data) and then evaluates this information for internal Venezuelan managerial purposes. These costs are relatively easy to identify and control, which gives this method the added attraction of being objective and verifiable.

1. Advantages

The "historical" cost model suggested focuses upon the investment made in human assets. Hence, significant advantages identified with "historical" cost models for internal purposes within the Venezuelan Navy would be:

a. A useful tool in reporting on actions taken and results achieved. A standard cost system could be developed by analyzing the composition of investments in human assets and determining standard costs for recruiting, selecting, hiring, training, and developing individuals. This data could provide a cost control system and a way to estimate replacement costs which could be used for human asset budgeting.

b. HRA in the Venezuelan Navy could be very important in the evaluation of alternatives. It could be useful in budgeting decisions relating to human resources.

c. HRA could be useful in evaluating personnel turnover. Measurements of the actual cost of turnover could be useful in deciding on remedial action and evaluation of results.

d. HRA system (historical cost) should make it possible to evaluate investment alternatives to develop the human resources.

e. In the process of searching for alternative solutions, human resource information could help in emphasizing the critical nature of all human assets. Having available assessments of human resources should result in a conscious recognition of the human factor in the development of alternatives [Ref. 57].

f. Reporting about human beings could give information about changes in the composition of the total Venezuelan Navy human resources. Wright [Ref. 58] noted a correlation between expenditures on recruiting, training, and retention of personnel and organization's effectiveness to achieve its goals. Thus, trends in the ratio of the investment in human assets to total assets could predict future effectiveness of performance.

## 2. Disadvantages

Disadvantages associated with the "historical" cost model suggested could be as follows:

a. Some people who attend training sessions may either be familiar with the material or just not be motivated to learn. In addition, different individuals will assimilate knowledge and skill at different rates from the same training.

b. In general historical costs ignore breakthroughs an individual may contribute, or, conversely, poor health or obsolescence of skill. These could be considered in amortization of costs but are difficult to produce an exact amortization.

c. Personal experience and effort made by highly motivated individuals will greatly contribute to the worth of the Venezuelan Navy as an organization. There may be nothing that the Venezuelan Navy can do to push these responses. In other words, the environment may be a necessary condition, but not in enough condition to motivate people.

## D. HUMAN RESOURCE ACCOUNTING AS HELP IN THE VENEZUELAN NAVY DECISION MAKING

The historical cost attributed model focuses upon the Venezuelan Navy's investment in its human resources. This investment includes costs for recruitment, hiring, selection, and development. The main trust of the historical cost

model is to accumulate all the expenditures associated with the five categories (shown in Exhibit III-1) in order that the organization will gain some insight as to the net investment in its human resources.

Many decisions involving people may need to be based, at least in part, on approximate costs. The starting point is to identify the kind of information needed to manage the organization's human resources effectively. As stated before, human resource costs may generally be broken into three basic elements: acquisition, learning, and separation costs. An examination how these basic elements could be of help to the Venezuelan Navy decision making follows in the next subsection.

#### 1. Control of Personnel Costs

For the purpose of the Venezuelan Navy, it should be noted that human resource cost measures are relevant to certain decisions such as personnel cost control. In this respect standard cost per personnel recruitment, selection, hiring, and training could be established and updated every year. Useful information can be attained from the comparison of standard costs and actual costs. In addition the variances produced should be analyzed and would form a basis for control.

The Venezuelan Navy acquisition costs could be comprised of recruitment, selection, and hiring costs. The acquisition costs are all those incurred to identify possible

sources of personnel. These include: communication to inform about Navy jobs, administrative function costs, and travel expenses.

The cost of communicating Navy job information to potential applicants depends on the method utilized by the Navy. These costs may range from those of a classified advertisement in a particular newspaper to specialized agency fees. These costs can be obtained from currently existing accounting records.

The administrative function costs are composed of two factors: the cost of personnel's wage rate plus, if necessary, special allowance rate. This cost is computed from the time required for the personnel to accomplish the recruitment, and the number of people involved in this duty. The travel costs are all those related with transportation. It is necessary also to take account of costs of any supply required.

The total recruitment cost will be a combination of the prior mentioned costs. The Standard Cost could be computed from the total recruitment cost, divided by the total number of candidates hired. Refer to Exhibit III-3 for a summary of the method of measuring recruitment costs.

The second important cost to be calculated is to determine people among applicants to join the Navy. It is called Selection Costs. These costs include: physical examinations, medical examinations, administrative functions,

EXHIBIT III-3

MEASURING RECRUITMENT COSTS

COMMUNICATING =  $(\text{ADVERTISING \& AGENCIES FEES})$   
NAVY JOB

ADMINISTRATIVE =  $(\text{ADMINISTRATIVE PERSONNEL PAY RATE AND ALLOWANCE PAY RATE}) \times (\text{NUMBER OF PERSONNEL REQUIRED}) \times (\text{TIME})$   
FUNCTION

OTHER EXPENSES =  $(\text{EXPENSES \& TRAVEL})$

Total Cr = COMM. NAVY JOB & AD + OTHER

travel expenses, and interviews. Refer to Exhibit III-4 for the method of measuring selection costs.

Medical and psychological examination costs are derived by the medic's pay rate plus special allowances. The costs depend on the required time and the number of people involved. The administrative function costs are calculated in similar form like medical tests.

In the above mentioned costs, it is important to take into account the expenses motivated by any kind of supplies used in the activities.

Another component factor in the selection costs is the interview function costs; here, the time required for each interview by the interviewer's pay rate has to be computed. The total cost depends on the number of interviews during the period.

To obtain the Standard Selection Cost, it could be derived from the total figure for medical, administrative, travel, and interview costs being divided by the number of participants who have taken part in the process of the selection of personnel.

Several administrative tasks must be undertaken by the Venezuelan personnel department in selecting and hiring new people. Examples of these activities include accepting applications, checking references of potential personnel, etc. The time required to perform these activities is not ordinarily captured by the Venezuelan Navy Information Systems.

EXHIBIT III-4

MEASURING SELECTION COSTS

$$\text{PSYCHOLOGICAL EXAMINATION} = \left( \begin{array}{l} \text{PERSONNEL'S PAY RATE} \\ \text{PLUS ALLOWANCE PAY} \\ \text{RATE} \end{array} \right) \times \left( \begin{array}{l} \text{NUMBER OF} \\ \text{PERSONNEL} \\ \text{REQUIRED} \end{array} \right) \times \left( \begin{array}{l} \text{TIME} \end{array} \right)$$

$$+ \left( \begin{array}{l} \text{COST OF} \\ \text{SUPPLIES} \\ \text{USED} \end{array} \right)$$

$$\text{MEDICAL EXAMINATION} = \left( \begin{array}{l} \text{PERSONNEL'S PAY RATE} \\ \text{PLUS ALLOWANCE PAY} \\ \text{RATE} \end{array} \right) \times \left( \begin{array}{l} \text{NUMBER OF} \\ \text{PERSONNEL} \\ \text{REQUIRED} \end{array} \right) \times \left( \begin{array}{l} \text{TIME} \end{array} \right)$$

$$+ \left( \begin{array}{l} \text{COSTS OF} \\ \text{SUPPLIES} \\ \text{USED} \end{array} \right)$$

$$\text{ADMINISTRATIVE FUNCTION} = \left( \begin{array}{l} \text{PERSONNEL'S PAY RATE} \\ \text{PLUS ALLOWANCE PAY} \\ \text{RATE} \end{array} \right) \times \left( \begin{array}{l} \text{NUMBER OF} \\ \text{PERSONNEL} \\ \text{REQUIRED} \end{array} \right) \times \left( \begin{array}{l} \text{TIME} \end{array} \right)$$

$$+ \left( \begin{array}{l} \text{COSTS OF} \\ \text{SUPPLIES USED} \end{array} \right)$$

TRAVEL = TRAVEL EXPENSES

$$\text{INTERVIEW FUNCTION} = \left( \begin{array}{l} \text{TIME} \\ \text{REQUIRED} \\ \text{INTERVIEW} \end{array} \right) \times \left( \begin{array}{l} \text{INTERVIEWER'S} \\ \text{PAY RATE} \end{array} \right) \times \left( \begin{array}{l} \text{NUMBER} \\ \text{OF} \\ \text{INTER-} \\ \text{VIEWS} \end{array} \right)$$

TOTAL Cs = PSYCHOLOGY + MEDICAL + AD + TRAVEL + INTERVIEW

The method previously mentioned for estimating the time requirement of the interview may also be applied in determining the time necessary for completing the administrative activities.

To complete the acquisition cost Venezuelan Navy management personnel have to compile the amount of spending to bring new personnel aboard. These costs are computed from the total travel costs and the amount of candidates brought to the Navy. Refer to the Exhibit III-5.

A standard cost system established in the Venezuelan Navy will support decisions about personnel alternatives. To manage personnel it is important to be aware of the concept of Standard Cost because it is the cost that ought to be incurred to obtain some specified end under certain predefined conditions. Thus, the standard cost concept is a hypothetical one, a target for what cost ought to be. Actual Costs are the costs actually incurred to attain some specified end [Ref. 59].

## 2. Control of Turnover Costs

The Venezuelan Navy, like many organizations, experiences levels of personnel turnover and accompanying turnover costs. Despite this condition, Navy managers are often unaware of the need for more effective decision making to prevent turnovers from recurring.

Manpower planning suffers because the magnitude of the turnover cost is seldom known. The extent of the

EXHIBIT III-5

MEASURING HIRING COSTS

$$\text{TOTAL MOVING AND TRAVEL COSTS} = \left( \begin{array}{l} \text{CANDIDATES' MOVING AND} \\ \text{TRAVEL EXPENSES} \end{array} \right)$$

turnover problem may never be discovered unless objective measurements are completed.

Generally, the Venezuelan Navy managers are not provided with cost data in personnel separations. As a matter of fact, they acquire little appreciation for the impact of personnel turnover on costs. To solve those problems, a practical measurement process must be utilized for analyzing the costs of personnel turnover. HRA concepts could be applied for helping in the measurement of personnel turnover costs. The human resource cost model suggested may provide the Venezuelan Navy managers with new information enabling more refined assessments of personnel policies.

HRA concepts may also contribute to a better understanding of how personnel costs impact on total Venezuelan Navy costs.

When measuring personnel turnover costs should be considered under three basic elements. As shown in Exhibit II-2, these include: separation costs, learning costs, and acquisition costs.

Separation costs are costs incurred on personnel (officers, cadets, enlisted, etc.) leaving the Navy. These include: interview time costs, terminating personnel time costs, administrative function related to terminations (payroll list, documents, etc.) and separation pay. Refer to Exhibit III-6.

EXHIBIT III-6

MEASURING SEPARATION COSTS

$$\begin{aligned}
 \text{INTERVIEW TIME COSTS} &= \left( \begin{array}{l} \text{TIME REQUIRED} \\ \text{PRIOR TO} \\ \text{INTERVIEW} \end{array} \right) + \left( \begin{array}{l} \text{TIME REQUIRED} \\ \text{FOR} \\ \text{INTERVIEW} \end{array} \right) \times \\
 &\quad \left( \begin{array}{l} \text{INTERVIEWER'S} \\ \text{PAY RATE DURING} \\ \text{PERIOD} \end{array} \right) \times \left( \begin{array}{l} \text{NUMBER OF} \\ \text{TURNOVERS} \\ \text{DURING PERIOD} \end{array} \right) \\
 \\
 \text{TERMINATING PERSONNEL'S TIME COSTS} &= \left( \begin{array}{l} \text{TIME REQUIRED} \\ \text{FOR THE} \\ \text{INTERVIEW} \end{array} \right) \times \left( \begin{array}{l} \text{AVERAGE PAY RATE} \\ \text{FOR TERMINATED} \\ \text{PERSON} \end{array} \right) \\
 &\quad \left( \begin{array}{l} \text{NUMBER OF} \\ \text{TURNOVERS} \\ \text{DURING PERIOD} \end{array} \right) \\
 \\
 \text{ADMINISTRATIVE FUNCTION} &= \left( \begin{array}{l} \text{TIME REQUIRED} \\ \text{BY PERS. DEPT.} \\ \text{FOR ADMIN FUNC-} \\ \text{TIONS RELATED} \\ \text{TO TERMINATION} \end{array} \right) \times \left( \begin{array}{l} \text{AVERAGE ADMIN.} \\ \text{PERSONNEL PAY} \\ \text{RATE} \end{array} \right) \times \\
 &\quad \left( \begin{array}{l} \text{NUMBER OF TURN-} \\ \text{OVERS DURING} \\ \text{PERIOD} \end{array} \right) \\
 \\
 \text{SEPARATION PAY} &= \left( \begin{array}{l} \text{AMOUNT OF SEPAR-} \\ \text{ATION PER PER-} \\ \text{SONNEL TERMINATED} \end{array} \right) \times \left( \begin{array}{l} \text{NUMBER OF TURN-} \\ \text{OVERS DURING} \\ \text{PERIOD} \end{array} \right)
 \end{aligned}$$

$$\text{TOTAL Sc} = \text{INTERVIEW TIME} + \text{TERMINATING PERSONNEL'S TIME} + \text{ADMIN. TIME} + \text{SEPARATION PAY}$$

The costs of interviews are composed of the time required for the interviewers to acquire any necessary information prior to the interviews, plus the time required for the interviews. Another time cost, the cost of the personnel's time, is computed from the time required for the interview multiplied by an average pay rate for all terminating personnel.

Normally, the Venezuelan Navy does not record the time required for interviews. This information may be derived by various estimates. Navy managers may develop a general appreciation for the average time required for conducting interviews. In cases where this time factor is not known, an estimate may be constructed on past experience. Another estimation of this time requirement can also be obtained by questioning interviewers. Administrative function costs are compiled from the required time by the personnel department due to the termination arrangement multiplied by the average personnel employee's wage rate and the total number of personnel turned over. The last one, separation pay, includes different payments related to personnel terminated computed from the total number of turnover during the period.

Another major cost considered when measuring replacement costs (turnover) are those for the orientation and training of personnel. This may include assigning new personnel to an experienced person for a period of time, or

alternative formal training programs. As presented in Exhibit III-7, learning costs are: informational literature, instruction in a formal training program, and special personnel allowances.

The cost of any informational literature provided to the newcomers must be considered as part of the cost of orientation and training by the Venezuelan Navy. Such costs could be obtained from existing accounting records. The cost of these materials multiplied by the incidents of turnover provides the first factor in determining learning costs.

People who join the Navy may also be involved in a formal training program. The cost of training due to turnover is proportional to the number of new vacancies instructed.

The learning cost is computed by a special allowance given to the personnel by the Venezuelan Navy during training periods multiplied by the number of candidates during the period. These costs do not include those related with school, instruction on ships, etc.

To compile total turnover costs, it is important to know the acquisition costs. They could be obtained from the previous computation of recruitment, selection, and hiring costs.

The total model to calculate turnover costs is represented by the following equation:

EXHIBIT III-7

MEASURING LEARNING COSTS

$$\begin{aligned}
 \text{INFORMATIONAL LITERATURE} &= \left( \text{UNIT COST OF INFORMATIONAL PACKAGE} \times \text{NUMBER OF CANDIDATES HIRED} \right) \\
 \\
 \text{FORMAL TRAINING PROGRAM} &= \left( \text{AVERAGE PAY RATE FOR INSTRUCTORS} \times \text{HOURS REQ'D FOR INSTRUCTION DURING PERIOD} \right) \\
 \\
 \text{PERSONNEL ALLOWANCE} &= \left( \text{NEW PERSONNEL PAY RATE} + \text{AVER. MILITARY PACKAGE EQUIPMENT} \right. \\
 &\quad \left. + \left( \text{FED. FEES RATE} \times \text{NUMBER OF CANDIDATES DURING PERIOD} \right) \right) \\
 \\
 \text{TOTAL LC} &= \text{LITERATURE COSTS} + \text{FORMAL TRAINING} + \text{PERSONNEL ALLOWANCE}
 \end{aligned}$$

$$\text{Turnover Costs} = \text{Sc} + \text{Lc} + \text{Ac}$$

where:

Sc: Separation Costs

Lc: Learning Costs

Ac: Acquisition Costs

To know the measurement of these costs, the Venezuelan Navy can choose among a variety of program alternatives in order to reduce turnover and achieve a better performing organization. Once the costs of turnover have been calculated, Navy personnel managers could then plot a course of action. As the turnover costs are known, Navy managers have more knowledge with which to decide between current turnover and programs designed to reduce turnover. This knowledge can lead to more effective decision making.

Many alternative programs are available that can assist in reducing turnover costs. Examples of these alternatives include increased compensation, increased benefits, and expanded personnel recruitment and selection. The Venezuelan Navy is an organization which continually experiences a high level of personnel turnover. The enlisted turnover, for instance, is about 80% each year. As a consequence, more effective decisions are imperative.

The HRA cost model proposed could assist in improving the rate of retention and making recruitment more effective.

Measurement of the costs incurred to recruit, hire, and train new personnel, as well as an accounting for expenditures in human resources that are irrevocably lost when people leave the Navy should, in the author's opinion, be extremely useful to management.

### 3. Budget Requests

The proposed human resource cost model is significant and potentially useful to an organization such as the Venezuelan Navy which invests the largest share of the budget into acquisition, training and support of its personnel.

It has been estimated by the Venezuelan Navy budgeting office that in 1980 about 84% of all the Venezuelan Navy expenditures were related to people. Any organization which invests so much in personnel is likely to seek methods to account for and the justification for those costs.

The Venezuelan Navy is concerned with the complexities of human budgeting. Every year congressional members are becoming increasingly analytical in their evaluation of proposed requirements. Established Standard Cost of Recruitment, Selection, and Training could be important support to justify and to achieve the desired budget.

Experiments and studies performed indicate that including human resource information in the input of personnel decisions can influence the choice made. The potential usefulness of this kind of information suggests that there are

the benefits to the Venezuelan Navy for future use of human resource accounting data when justifying the budget request.

#### 4. Manpower Planning

The author contends that the Venezuelan Navy management faces a lack of good quantitative approaches to manpower planning problems. It has been stated, that some forms of planning and continuously assessing the basic missions and objectives and the strategies governing the use of resources are needed to achieve these objectives. HRA could be a useful tool in manpower planning in order to avoid possible lose of control and duplication of efforts. Planning answers questions concerning the number of people required and when people must be hired.

Computer technology allows Navy personnel management to work with a vast amount of data to obtain the needed information for manpower planning. The manpower resources forecast is an important ingredient in the decision making process and the author suggests that an HRA cost model could be used by the Venezuelan Navy management to assess current and potential manpower needs and to test alternative approaches toward meeting those needs. Forecasting from HRA will be based on the goals and expectations of growth in the Venezuelan Navy.

Historical cost data can be joined to statistical techniques to attain future needs within the Navy. These could include Linear Regression Analysis, which is a

statistical technique that can assist Navy managers in forecasting manpower needs. Below is a hypothetical example of its application.

Suppose in the Venezuelan Navy there has been implemented the proposed historical cost model system of HRA. Four years of data regarding recruitment costs (millions dollars) and the number of personnel hired have been calculated as follows:

	YR 1	YR 2	YR 3	YR 4
Recruitment Cost (RC)	.1	.13	.15	.2
Personnel Hired (enlisted)	2000	1990	2100	2200

The following questions are important for manpower planning in the coming budget year:

- Estimate the relationship between RC and people hired.
- Estimate the expected number of personnel given RC cost will go down to \$.18 million dollars.
- Estimate the expected RC to achieve 2250 men.

From procedures of Linear Regression Analysis one can obtain the equation which establishes the relationship between RC and personnel hired during those years.

$$Y = 17.5 + 22.0X$$

Where 22 indicates the slope of the curve.

The coefficient of correlation is 93.8%

It has been determined that 2149 men will be needed if recruitment costs are reduced to \$.18 million dollars.

In addition to recruit 2250 men the Venezuelan Navy will have

to spend \$.2257 million dollars in the planned \$.18 million dollars.

As shown, statistical knowledge gives numerical assistance in forecasting manpower planning.

In addition, having standard costs established from an HRA system, Navy managers could have an easier way to calculate potential costs of personnel needs in a particular time. It will not be difficult to compute the total costs of forecasting personnel in recruitment, selection, and hiring.

The HRA model suggested for manpower planning could be the first step of an effective personnel program. It involves predicting future human resources needed and planning the steps necessary to meet these needs. HRA could help assure that the right number and the right kind of people will become available at the right time.

##### 5. Information for Management Effectiveness

One of the most important implications of HRA for the Venezuelan Navy is that it will make possible the quantification and isolation of the consequences of the managerial decisions involving personnel. It is the author's opinion that with the implemented HRA system in the Venezuelan Navy, it would be possible to manage human resources effectively and efficiently and could be aware of the fact. Thus, any waste or liquidation of human resources by Navy managers would be possible only by design and not through ignorance.

The literature reviewed by the author states that personnel stay with an organization primarily for reasons of inertia. That is, they will remain with an organization until some force pulls or pushes them outside. The turnover in the Venezuelan Navy indicates that the personnel derive little satisfaction from either the work itself or the work environment.

In the Venezuelan Navy units where the turnover rate is significant, there could be conducted some special survey of information to identify the dissatisfaction within the personnel and help avoid their leaving the organization. The Venezuelan Navy managers being aware of personnel costs have to introduce management's effectiveness in the development and utilization of people as required.

Promotions and awards to Navy managers may encourage them to take short-term actions which are contrary to the Venezuelan Navy benefits in the long run. In the short run, for instance, a Navy manager can put pressure on people temporarily to increase their productivity with the effects upon personnel motivation, attitudes, and labor relations going unmeasured. As a result, highly trained and skilled personnel become dissatisfied and leave the organization. The costs of replacing them may be substantial.

Finally, HRA in the Venezuelan Navy can assist Navy management in conserving its human resources by providing an early warning system. It can measure and report certain

(social-psychological) ideas of the condition of the human being, and management can assess trends in order to stem the tide of the turnover.

#### IV. IMPACT UPON THE VENEZUELAN NAVY MANAGEMENT BY EMPLOYMENT OF HUMAN RESOURCE ACCOUNTING

Human Resource Accounting (HRA) has been developed in order to improve the effectiveness of managerial decision making. In other words, to more accurately reflect in financial terms the impact of managerial decision regarding people. It could influence the process for better personnel decisions.

Rhode, Lawler, and Sunden [Ref. 60] argued that abundant evidence indicates that failure to measure and report the value of human resources may cause managers to ignore the impact of their decisions on employees. The Venezuelan Navy is a government sector in which its final results can be seen as effectiveness and efficiency. It does not require a special measurement to show something on an annual financial statement. The Venezuelan Navy managers have to distribute and send the Navy budgeting in the best ways possible. They have to look for advantages to the country.

To allocate and to use the Venezuelan Navy personnel budgeting in optimal arrangement, for instance, the importance of measuring human resources in monetary terms could be developed. Advantages have been explained in Chapter III of this thesis.

Flamholtz [Ref. 61], for instance, says:

"...failure to measure and report the value of human resources to management can conceal suboptimal decision making in organizations..."measuring the human resource values may be beneficial in manpower planning...that measurement...are expected to be useful in manpower acquisition, development, allocation, replacement, and compensation decision...."

Flamholtz [Ref. 62] also designed a laboratory experiment to determine the human resource valuation in management decision. He concluded that human resource value measures as well as numbers per se apparently influence the criteria used in reaching decisions as well as the decisions themselves.

"...decision making may derive benefits from reported numbers simply because they are motivated to systematically examine the dimensions which the numbers purport to represent...."

The Venezuelan Navy like many organizations agrees in three principal bases: material, financial, and human beings. Attention has been centered in material and financial elements. The third element is forgotten almost completely even though one measure of an organization's health is an evaluation of its manpower inventory.

The Venezuelan Navy with knowledge of personnel value will make decisions in order to maintain human assets into the organization. When the Navy invests any amount in a machinery, it is impossible to operate it without skilled men. On the other hand, the investment in a personnel (cost of hiring, training, etc.) has to be a great value to the

organization and makes it specially important to determine the true value of people and the skill they possess.

HRA will have importance as a tool in managerial decision making personnel in the Venezuelan Navy. If officers or Navy managers are to be fully aware of what one hour of their time is worth, the motivational impact might cause them to use their time as efficiently as possible, and the time of their subordinates personnel in the best way. If the Venezuelan officers take better accounting of the human factor, it will improve their effectiveness because so far little emphasis is given to the aspect of personnel management. The Venezuelan officer as a leader has to recognize human resources as a qualitative factor when making decisions.

Most researchers in HRA developed a conceptual system for investment in human resources. One of them, Michael O. Alexander, says that an accounting system which includes human resource dimensions will assist managers in planning manpower needs, directing training efforts, and allocating staff. His conceptual approach sets out to identify, quantify, and report investments made through internal accounting reports [Ref. 63]. As suggested, HRA might be useful in managerial decision making when regarding the internal purposes.

Adoption of HRA in the Venezuelan Navy (e.g., historical cost) will probably be useful because it will permit personnel decisions to be based on a cost value.

Human asset measures in competing for a decision maker's attention have been demonstrated by Harrel and Klick [Ref. 64] and by Flamholtz [Ref. 65]. Flamholtz determined in his study:

"...One of the classic organizational techniques of influencing individual perception for purposes of decision making and control involves using measurement. A basic premise is that the presence or absence of measurements influences decisions and other aspects of behavior...."

This means people are motivated to take the variable of human resource value into account in their decisions.

HRA will give the Navy manager tools needed to effectively and efficiently acquire, develop, allocate, utilize, evaluate, and compensate human resources.

Flamholtz suggests a framework to guide management in using its personnel assets effectively and efficiently. The purpose is to conceptualize how the managerial accountant may help management utilize the human resources of the organization to achieve its objectives:

1. An organization's employees are valuable resources and should be treated as assets, not as expenses which is done under present day accounting practice. A firm's people are assets, not in the sense that they are owned, but because they are expected to provide current and future services. The effective operation of an HRA system may encourage managers to see people as resources or assets, not as expenses.

2. Managing people as if they are resources or assets, rather than as expenses, is likely to lead to the enhancement of their value to the organization. It may foster a managerial philosophy that emphasizes the value of human assets. Such a philosophy may activate management to conserve and enhance the human element.

3. The process of measuring the cost and value is expected to result in a positive difference in the human resource management. Managers pay particular attention to those dimensions in their environment that are measured and which form the basis for rewards. Since HRA measures the value of people, managers tend to exert concrete efforts to increase the value of their subordinates and this contributes to the value of the organization as a whole [Ref. 66].

A report was prepared under the United States Navy Manpower Research and Development Program of the Office of Navy Research and monitored by the Personnel and Training Research Program of the U.S. Navy. This document describes the development of a current value HRA methodology [Ref. 67]. Its conclusion is:

"...well designed, well implemented current value of HRA system can provide data about changes in the value of a too often overlooked sector of an organization...its human resources. The presentation of this data in a unit common and valued in the organization will show more clearly the impact of management decisions in the human organization. HRA is also a potential tool for cost-effectiveness analysis, problem solving, performance evaluation, and other"

"management duties currently so dependent or impressionistic data. Thus, while technical and implementation issues remain, accounting which for the impact of decision on human resources will be a great deal more accurate than current systems that only account for physical resources...."

An HRA system, in particular, an historical cost system, will give many benefits to the Venezuelan Navy as an organization. It will be a device of exploitation by Navy managers. HRA is intended as a managerial tool which, when fully developed, will lead to better allocation of human and other resources for the benefits not only of the organization but of all of its members.

Finally, the inclusion of human resource information in the Venezuelan Navy input to personnel decisions can influence the choices made. The potential usefulness of this kind of input information suggests that there are benefits to the organization in using human resource accounting data.

## V. CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

This thesis has been concerned with analyzing the importance of HRA as a managerial tool for Venezuelan Navy managers. HRA has been argued to be relevant for internal decision needs, such as planning, control, and performance evaluation.

This thesis has attempted to contribute to the useful theory of HRA historical cost to improve the effectiveness of the Venezuelan Navy decision making process.

For many years the Venezuelan Navy has acted in different ways to take advantage of its human being process with the goal of improving control and management, with greater emphasis on planning, but the Venezuelan Navy system progresses slowly.

To achieve the objective proposed, the author has suggested the use of an HRA historical cost model. The HRA measurement is based on the theory that the availability of measurement information will affect or influence the decision process--"things which are measured tend to have an advantage in influencing decisions...." [Ref. 68]

Questions have risen from accountants about the feasibility of implementing HRA in a real world environment for decision making purposes. Brent and Marvin concluded that the question is really not one of feasibility; rather, it is a:

"...question of validity and reliability of the results for the specific measurement technique used by accountants for a human asset of an entity. Specifically, the issues must be resolved as to whether or not such a measurement device really measures what is intended, and second, can the same results be replicated by independent sources...." [Ref. 69]

As examined earlier, the human resource number will play an important role in the Venezuelan Navy managerial performance, because it will determine the criteria to be used to make decisions involving acquisition, development, conservation or compensation of personnel. The fact that HRA is not acceptable for financial reporting is not a restriction in its use for internal reporting to the Venezuelan management. Direct costing, which was introduced as a managerial technique in 1939, has become accepted managerial accounting for internal purposes; although, it has never been accepted accounting for either tax or financial reporting. The acceptance of direct costing was based on its proven usefulness. The question, therefore, is whether or not the assumed usefulness of HRA cost model will bring benefits to the Venezuelan Navy managerial purposes.

The historical cost model suggested as an alternative approach to the Venezuelan Navy managers will become the initial step to developing an acceptable HRA system. Priority should be given to developing the HRA techniques needed to provide information for daily management decision making into the Venezuelan Navy. The objective is human assets values. There can be no question that such information

is of significant value. If HRA information can improve the managerial decision making process, then the appropriateness of HRA cannot be doubted.

The HRA cost model argument for the Venezuelan Navy purposes could be summarized as follows:

1. Its relative objectivity.
2. Its facilitation of comparison on levels of human resource investment on a basis consistent with accounting treatment of other assets.
3. At least a fairer matching of benefits with expense, in particular, time periods.

In addition with a minor amount of study and guidance and full support from top Navy managers, this HRA program producing positive results in short order can be started in the Venezuelan Navy.

This thesis has been conducted under certain limitations to provide evidence that HRA data can affect decision preferences. But, there are many problems to implementing an HRA system in any organization. These limitations include use of a single type of HRA data, focus on a single decision content and the laboratory experiment may be viewed constructively in terms of future research needs as suggestions.

The future of HRA depends on proof of the validity of its concepts and the development of a workable methodology. The 1974 Report of the Committee on Accounting for Human Resources outlines the scope of the tests facing the field:

"...Research is required to demonstrate both the feasibility of HRA and its effects on attitudes and behavior. Actual organizations must begin to use HRA concepts and systems, and report the systems and conditions which are effective and ineffective and perhaps useless...." [Ref. 70]

Complexities of some of the HRA proposed methods, could bog down the feasibility of any HRA system. On the other hand, HRA could grow into a productive and useful management tool for monitoring employee effectiveness and maturation and for profiling an organization's objectives in order to attract new investment or financing. Research to this end should be conducted on the strengths and weaknesses of HRA in actual Venezuelan Navy data.

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